

*USING INDICES OF HAPPINESS TO EXAMINE THE
INFLUENCE OF ENVIRONMENTAL ENHANCEMENTS FOR
NURSING HOME RESIDENTS WITH ALZHEIMER'S DISEASE*

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The present study extends the growing behavioral literature on indices of happiness for persons with developmental disabilities to the geriatric population. Data on indices of emotional affect (i.e., happiness) were collected prior to, during, and after each resident was exposed to environmental enhancement activities of various durations. Results showed that every activity improved each resident's level of happiness when compared to pre- and postactivity levels. These outcomes suggest that indexing affect may be as useful for nursing home residents as it has been for individuals with developmental disabilities.

DESCRIPTORS: elderly, dementia, gerontology, emotion, private events

Largely based on the medical model, nursing homes have traditionally emphasized meeting residents' physical needs while inadvertently overlooking their psychological and personal needs (Lundervold & Lewin, 1992). In an attempt to reorganize their approach to care, many nursing homes have begun to focus on improving the quality of life for their residents (Weiner, 2003). One way they have attempted to do this is to engage residents in meaningful enjoyable activities. Despite these efforts, few studies have examined the efficacy of these activities on increasing quality-of-life measures. One reason for this is the inherent difficulty in operationalizing such a construct as *quality of life*.

One related measure that has received increasing exposure in the behavior-analytic literature is happiness indices. Happiness indices have been used successfully to assess preferences of individuals with limited verbal abilities (Green & Reid, 1996). In fact, Green, Gardner, and Reid (1997) demonstrated that for individuals with profound disabilities, happiness indices increased and decreased,

respectively, during exposure to preferred and nonpreferred activities. As the geriatric population continues to grow and behavior analysts begin to expand their involvement in geriatrics, it is possible that this type of measure of emotional well-being will become similarly useful. Therefore, the present study extends the utility of happiness indices to the elderly population. In addition to expanding this measurement to a different population we also attempted to examine the effects of activity type and duration on the maintenance of happiness indices following three nursing home activities.

METHOD

Setting and Participants

The current study was conducted in a 159-bed skilled-care nursing facility. Three residents consented to participate in this study. All 3 participants had a primary diagnosis of dementia of the Alzheimer's type and had limited verbal repertoires. Kerrie, Linda, and Mavis were 89, 81, and 83 years old, respectively. Kerrie and Linda were both ambulatory, and Mavis required a wheelchair for mobility.

Behavioral Definitions, Design, and Data Collection

The behavioral definitions of happiness used in the current study were the same as those used

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by Green and Reid (1996). Specifically, *happiness* was defined as any facial expression or vocalization that is typically considered to be an indicator of happiness among people without disabilities, including smiling, laughing and yelling while smiling. If the resident did not display such observable indices of happiness, they were either coded as displaying *unhappiness*, which was defined as any facial expression or vocalization that is typically considered to be an indicator of unhappiness among people without disabilities such as frowning, grimacing, crying, and yelling without smiling, or *no affect*, which was scored if neither of the above two behavioral definitions were met.

The effects of various activities on indices of happiness were evaluated by comparing activity periods to baseline periods arranged before, during, and after each of the activities in a multielement design. Data were collected using a 10-s partial-interval recording system with a 5-s recording break separating the end of one interval and the beginning of the next. The sequencing of experimental conditions was randomized across participants.

Procedure

Data were initially collected on all residents 10 min prior to the experimenter's initiation of any activity. Typical contexts that residents were found in prior to experimenter-directed activities included sitting in a wheelchair in a hallway, lying in bed, or walking down a hall. Following 10 min of observation, the experimenter directed and led the resident into one of three activities that were currently available to all residents. Order of exposure to each activity was counterbalanced across participants. The first activity was an ice cream parlor, consisting of a location in the common area of the home where residents could place an order at a counter for various types of ice cream treats and then proceed to a dining location to consume their dessert. The second activity was an outdoor farm, which consisted of a large courtyard area in the center of the home that had been

converted to a petting zoo with a number of geese, exotic chickens, rabbits, and other animals. The third activity varied as a function of caregivers' opinions about the participants' preferences and was collectively referred to as engagement, which took the form of singing (Linda), putting puzzles together (Mavis), or having a conversation (Kerrie).

Each resident was exposed to all three activities for 5, 10, and 20 min. Replications of all three activities were conducted at the 10-min duration for all 3 residents. These manipulations resulted in a total of 12 exposures to various activity arrangements and durations. Following exposure to the activity, each resident was located and observed 10 min and 1 hr after the activity had concluded to assess any possible maintenance effects. Location of each resident varied, because they were free to move around the home as typical of a normal day. All observations were 10 min in length except during activity exposure (length was dictated by the length of exposure).

Interobserver Agreement

A second observer was present and independently collected data on 25% of the sessions. Agreement was calculated by dividing the number of agreements of emotional affect by the number of agreements plus disagreements and multiplying by 100%. Resulting overall interobserver agreement was 95%.

RESULTS AND DISCUSSION

Figure 1 displays percentages of happiness indices exhibited by the 3 residents across the varying activities and durations. Although a multielement design was used to compare activities of varying length, the data are plotted using lines that reflect the progression of events for each duration of exposure to the activities. The mean overall level of happiness is plotted with a bar. At percentages less than 100%, the remainder was made up of either no affect or unhappiness indices (which did not vary

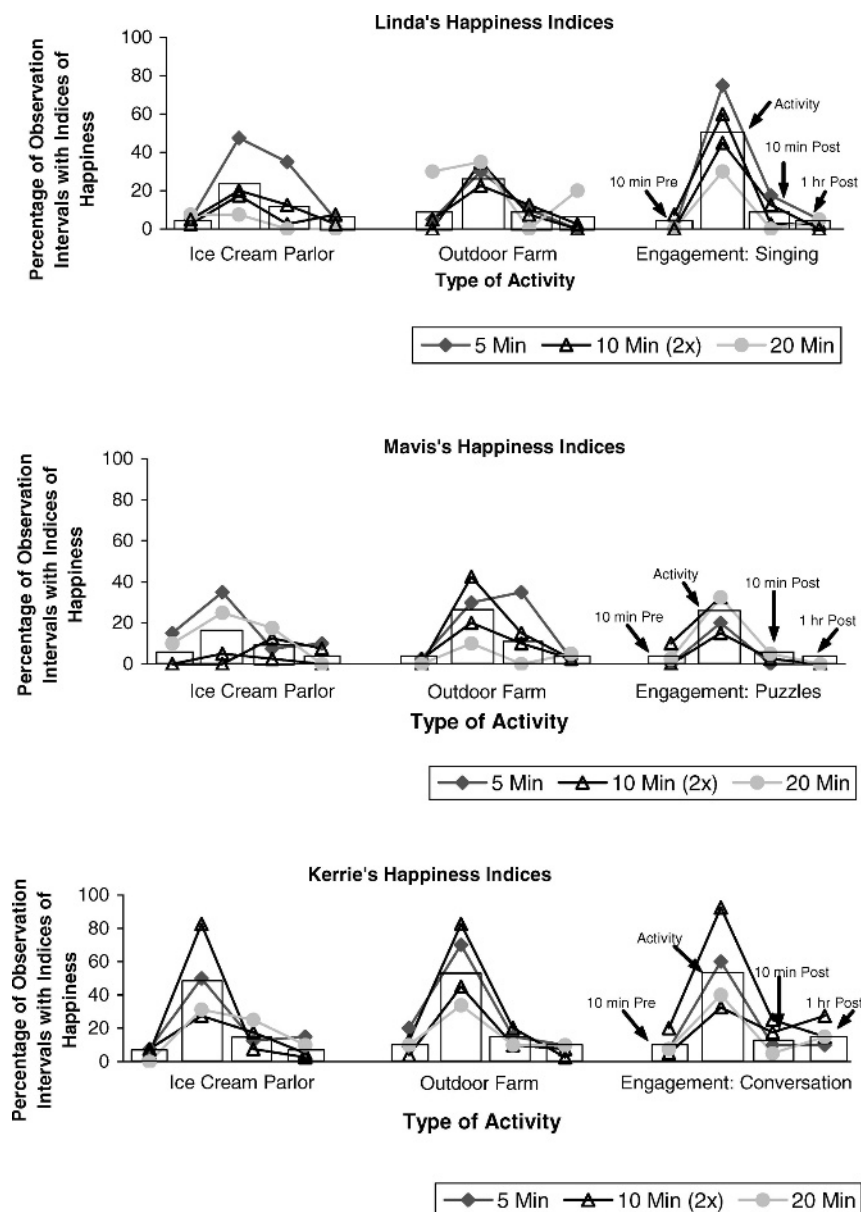


Figure 1. Happiness indices for all 3 residents for each of the three activities.

systematically). The results of the current study reveal that each participant displayed increased mean levels of happiness during all three activities as opposed to before the activities. Interestingly, most residents were still displaying slightly higher levels of happiness 10 min after the activity ended compared to before the activity. However, the participants varied with

regard to which activity evoked the highest indices of happiness, and durations of 5 to 20 min had similar effects on happiness. These findings indicate that even very brief engagements in activities can improve nursing home residents' happiness in their surroundings.

The same activity may not function as a reinforcer for each participant, indicating that

when measuring happiness, the selection of activities should be coupled with preference assessments (e.g., DeLeon & Iwata, 1996). Variations across participants were noted. For instance, the outdoor farm and engagement in conversation were associated with the greatest increases in happiness for Kerrie. Engagement in singing was associated with the largest increases for Linda. Mavis demonstrated increased levels of happiness with both the outdoor farm and engagement with puzzles; however, she generally displayed higher indices of happiness at 10 min and 1 hr after exposure to the outdoor farm.

Although these findings are promising, the current study suffers from several limitations, including the evaluation of a small number of participants across a limited number of activities and the lack of extensive replications at all activity durations. Also, no attempts were made to systematically control the location of the residents before or after exposure to the activities. Although experimentally more rigorous controls could be established to ensure constant environmental conditions pre- and postactivity, this may sacrifice external validity because location would tend to vary under

natural arrangements. In summary, these findings suggest that happiness indices, previously explored by Green and Reid (1996) in the developmental disabilities literature, may have utility for the geriatric population.

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